ANNEX K

PROJECT REPORT INSTRUCTIONS

Information concerning data preparation and transmittal to NGS is found in Chapter 1, HORIZONTAL CONTROL (HZTL) DATA, in Chapter 5, VERTICAL CONTROL (VERT) DATA, and in Chapter 9, GRAVITY CONTROL (GRAV) DATA. The section titled "Media for Submitting Data" describes procedures for packaging of the data as well as information required in the letter of transmittal pertaining to the floppy disks or magnetic tape. The transmittal letter should inventory the total contents of the shipment. In addition, special instructions for submitting GPS relative positioning data to the NGS are provided in ANNEX L.

The most important supporting document that should be included with the shipment is the project report. The project report is the permanent hardcopy record that summarizes project accomplishments. It describes the general project goals and the equipment and procedures employed to meet specific conditions and requirements. The report provides information useful for verification and adjustment, including detailed explanation of unusual or special features of the project. The recommended content of a project report follows. The project sketch is an attachment to the report. For projects totally or partially supported by NGS, a different report may be required.

Report Outline for a Horizontal Control Project

I. Title page. List the type of report (Horizontal Control), order-class of survey, project title including the state, any appropriate identifying control number, beginning and ending dates of field work, agency name, and the name of the project director (supervisor). The project title should include the locality of the survey (e.g., Brainerd to Crosby, MN).

II. The report should address the following topics:

A. Location. Briefly describe the project area, indicating each state and the counties in which the project is located.

B. Scope

1. Purpose. State the purpose of the survey and the extent to which the requirements were satisfied.

2. Specifications. State the specifications which were followed and the methods used.

3. Monumentation. Describe the monumentation that was established and recovered.

4. Instrumentation. List the instruments and equipment used. For EDM, describe the instrument calibration and how the calibration and refractive index corrections were applied. Include model and serial numbers of all instrumentation.

5. Special equipment. List any special equipment used. Examples include Bilby towers, helicopters, wooden stands, Peck towers, etc.

6. Existing control. List all existing horizontal control contained in the project area, NGS-published or otherwise. For NGS control, list the quadrangle and station numbers. Also, include any bench marks used to control the elevations. For existing horizontal control <u>not connected</u> to the new survey, include an explanation of why connections were not made.

C. Comments (THIS IS THE MOST IMPORTANT SECTION OF THE REPORT!)

1. Reconnaissance. When a reconnaissance plan was submitted and approved by NGS prior to beginning the field measurements, describe any changes from the original reconnaissance and the reasons for the changes.

2. Specifications. Describe any deviations from the specifications used and the reason for such deviations.

3. Computations. Describe which computations were performed, the coordinate system used (e.g., latitude and longitude, state plane, or local rectangular grid), and what type of adjustment, if any, was performed.

4. Problems. Describe any problems encountered such as: moved or "suspect" marks, bad check angles, and poor position, azimuth, and length checks.

5. Recommendations. Describe any recommendations for future field measurements and/or recomputation of published data.

D. Statistics

1. Points. List the number of points positioned grouped by type of mark such as: new main scheme, old main scheme, and/or landmark stations.

2. Observations. List the number of observations and their precision grouped by type of observation such as: horizontal directions, zenith distances, vertical angles, distances, and astronomic azimuths.

3. Closures

   a. Triangle. List the number of triangles, the average triangle closure, and the maximum triangle closure. For the maximum triangle closure, identify the three vertices.

   b. Traverse. For each traverse closure, identify the traverse segment and list the azimuth closure, the position closure, the total length, the number of courses, and the minimum course length.

4. Reoccupations. List any reoccupied stations, the lines reobserved, the reason for the remeasurement.

5. Check measurements. List comparisons between previously observed angles (check angles) and/or distances with current observations. Also, list the average and maximum disagreements.

6. Fixed measurements. List comparisons between computed observations (computed from existing coordinate data) and current observations. Also, list the average and maximum disagreements.

E. Status

1. Records. Describe the current status and future disposition of the station and observation records. If submitted to NGS, they will be archived in a Federal records center.

2. Contact. Provide the name and telephone number of a person to contact regarding questions which may arise during NGS processing of the data.

III. Attachment to the report. Include as an attachment to the project report an original and three copies of a sketch of the project area. The sketch must show station names and lines which were observed for angles and distances. To ensure that reproductions and film reductions of sketches are of optimum quality, sketches should not be drawn on maps. Although linen, mylar or vellum are desirable, it is not required. A 24" x 36" sketch is preferred, but the size should not exceed 36" x 48". An overview of the project geometry is one objective of the sketch, and, therefore, a scaled drawing with tick marks is required. Symbols and notations explained in C&GS Special Publication 247, (1959: pp. 6,191, and 192) are suggested. The names of main scheme stations will be placed adjacent to the station symbol. Supplemental stations may be numbered for reference to a list of names. Submitting agency or organization name should appear in a title block. The sketch may be hand lettered.

Report Outline for a Vertical Control Project

I. Title page. List the type of report (Vertical Control), order and class of survey, project title including the state, any appropriate identifying number (for projects that have been assigned HGZ accession numbers by NGS, the numbers should be listed on the title page), beginning and ending dates of both mark setting and leveling, agency name, and the name of the project director (supervisor). The project title should include the locality of the project.

II. The report should address the following topics:

A. Location. Briefly describe the project area, including state or states in which it is located. Note the number of lines, their general configuration, and their total distance.

B. Scope

1. Purpose. State the purpose of the survey and the extent to which the requirements were satisfied.

2. Specifications. State the specifications which were followed and the methods used.

3. Monumentation. Describe the monumentation that was established and recovered.

4. Instrumentation. Describe the equipment, including a list of instruments, rods (including calibration information), and recording equipment. Include model and serial numbers of all equipment and the dates they were in use. Note the reasons for return of equipment for repairs or adjustment. For rod calibrations, cite which previously submitted calibration data are to be used to process the project. If none were submitted previously, include such calibration data with the leveling data submitted with this report.

C. Comments (THIS IS THE MOST IMPORTANT SECTION OF THE REPORT!)

1. Reconnaissance. If a reconnaissance plan was submitted and approved by NGS prior to beginning the field measurements, describe any changes from the original reconnaissance and the reasons for the changes.

2. Specifications. Describe any deviations from the specifications used and the reason for such deviations.

3. Routes. Briefly describe each line, including line number or other identification, topography and climate, features of the routing such as control point spacing and frequency of connections, unusual points leveled, unusual procedures, river or valley crossings, and ties established.

4. Problems. Describe all problems encountered, such as: moved or "suspect" marks, systematic new-minus-old comparisons, poor ground or atmospheric conditions, etc.

5. Recommendations. Mention specific sections that required additional work as a result of preliminary analysis. Describe areas which may require additional leveling in the future.

D. Statistics

1. Closures. List loop closures for all loops of concurrent surveys. State the accumulated forward-backward difference for each line.

2. Check-measurements. Compute and list new-minus-old tabulations for all releveling of previously leveled lines. Also, list the average and maximum disagreements.

3. Progress. (Needed only if submitting organization is supported by NGS funding and/or equipment). Total progress along lines, double-run progress, single-run progress, total distance leveled, distance leveled as reruns, and number of sections.

4. Reruns. For all sections that were releveled for any reason other than those exceeding the tolerance limit, list the sections and the reasons for releveling.

E. Status

1. Records. Describe the current status and future disposition of the station and observation records. If submitted to NGS, they will be archived in a Federal records center.

2. Contact. Provide the name and telephone number of a person to contact regarding questions which may arise during NGS processing of the data.

III. Attachments to the report. Include as an attachment to the report a simple sketch of the project area showing completed lines, junctions, and loops. A section of the State Index Map of Control Leveling is sufficient with progress marked and lines clearly labeled. Also, attach copies of sketches showing loop closure computations.

Report Outline for a GPS Control Project

(See ANNEX L beginning on page **L-5**)

Assistance and Mailing Information

The point of contact at NGS for questions concerning the Input Formats and Specifications of the National Geodetic Survey Data Base is:

Mr. Sherrill Snellgrove
National Geodetic Survey
NOAA, N/NGS23
1315 East-West Highway, Station **8753**
Silver Spring, Maryland 20910-3282

Telephone: (301) **713-3200, ext. 100**

Classical horizontal and/or classical vertical data sent to NGS via U.S. Postal Service, United Parcel Service or similar commercial carrier should be addressed:

Director, National Geodetic Survey
NOAA, N/NGS12
1315 East-West Highway, Station **9202**
Silver Spring, Maryland 20910-3282

GPS data sent to NGS via U.S. Postal Service, United Parcel Service or similar commercial carrier should be addressed:

Ms. Madeline White
National Geodetic Survey
NOAA, N/NGS42
1315 East-West Highway, Station 8432
Silver Spring, Maryland 20910-3282

REFERENCE

Gossett, F.R., 1950, rev. 1959: Manual of geodetic triangulation. C&GS Special Publication 247, 344 pp. National Geodetic Information Branch, NGS, NOAA, Rockville, MD 20852.